Math 211
Quiz 02

T 09 Jul 2019

Your name: _____

Exercise

(2 pt) Consider the 1st-order linear ODE

$$\frac{dy}{dt} = 2ty + 3te^{t^2}. \tag{1}$$

Confirm that the function[1]

$$\begin{aligned} y : \mathbf{R} &\to \mathbf{R} \\ t &\mapsto \left(\frac{3}{2}t^2 + 1\right) e^{t^2} \end{aligned}$$

is a solution to (1), and that the solution satisfies the initial condition $y(0) = 1$.

[1] This notation says that y is a function with domain (input) all real numbers, codomain (output) real numbers, and rule of assignment given by

$$y(t) = \left(\frac{3}{2}t^2 + 1\right) e^{t^2}.$$